



AO Milan 40MM Manufacturing Support Capabilities

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January 28, 2004**

AO MILAN 40MM

AO Directed Source Responsibilities

AO's duties as a directed source include

- Protection of customer confidential information and pricing
- Firewall to protect proprietary information from competitors
- All customers will receive equal treatment
- Fairness in pricing

AO is prepared to begin meeting with all teams/companies planning to compete for 40mm system contracts to further clarify how this is already being accomplished for other ammunition programs in which AO participates.

Systems Procurement Support Infrastructure

- **PROGRAM MANAGEMENT & CONTRACT MANAGEMENT**
- **PROCESS & PRODUCT QUALITY SYSTEMS**
- **LEAN & 6 SIGMA CONTINUOUS IMPROVEMENT**
- **PRODUCT & PROCESS ENGINEERING & DEVELOPMENT**
- **SUPPLIER QUALITY & DEVELOPMENT**
- **PURCHASING & SUPPLY CHAIN MANAGEMENT**
- **CONFIGURATION MANAGEMENT**
- **TESTING AND EVALUATION**
- **PRODUCT INVESTMENT**
- **CAPABILITY & RELIABILITY SUMMARY**

AO MILAN PROCESS & PRODUCT QUALITY

➤ AO QUALITY PROGRAM

- ISO 9001 - 2000 Certified Quality System
- Product Accepted Per MIL-STD-1916 Inspection Plan
- Statistical Process Control
 - Approved General SPC Plan & Item Detailed SPC Plans
 - SPC Requirements Flowed to Suppliers
 - Certified Inspection and NDT Personnel & Training Resources
 - Dedicated Quality Engineering Resources

➤ PROCESS RELIABILITY EXCEEDS 1 PPM DEFECTIVE

➤ RELIABILITY AND STATISTICAL SOFTWARE PROGRAMS

➤ CRITICAL DEFECT & WARRANTY CLAUSE

PRODUCT & PROCESS ENGINEERING & DEVELOPMENT

➤ CUSTOMER TEAMING - 40MM PRODUCT IMPROVEMENT

- Cooperative Research & Development Agreement (CRADA) with ARDEC
- M433 Case To Projectile Sealing Improvement
- M433 Propellant Loading Specification Enhancements
- High Velocity Family Propellant Replacement
- M430A1 Dud Reducing Fuze
- M430A1 Performance Improvement (velocity std dev., dispersion)
- M430A1 IM Loading Project
- Teaming in development of new 40MM rounds
 - Low cost HV training
 - Low velocity flechette & thermobaric
 - Low velocity non-lethal

SUPPLIER QUALITY & DEVELOPMENT

➤Effective Supplier Quality and Development Program

- Supplier Certification, Reward and Recognition Program
- Supplier Data Base with Feedback and Report Card System To Track Performance
- Certified Supplier List for 40mm Product Family Components
- Resources Dedicated to Supplier Development
- Lean Sigma Projects With Suppliers
- Development and Training Available for

PRODUCT & PROCESS ENGINEERING

- **EQUIPMENT SPECIFICATION THRU PROVE-OUT**
- **START-UP PLANNING AND ASSISTANCE**
- **INDUSTRIAL ENGINEERING STUDIES**
- **MECHANICAL ENGINEERING AND MISTAKE PROOFING**
- **PROCESS ENGINEERING USING LEAN SIGMA TECHNIQUES**
- **OVER 50 YEARS EXPERIENCE IN PROCESS IMPROVEMENTS AND DATA COLLECTION EXPERTISE**

PURCHASING & SUPPLY CHAIN MANAGEMENT

- **Mature and Effective Supply Chain Management Program**
 - Established U.S. Sources for all 40MM Components
 - Data Base for Suppliers and Supplier Performance
 - AO is Production Integrator For Commercial 40MM Sales - Piggy Back Int'l Sales to Maximize Volume Price Advantage
 - Supplier Certification Program in Place
- **Over 55 Years' Experience in DOD, Commercial and International Purchasing**
- **ERP System for supply tracking and**

PROGRAM MANAGEMENT

- **CRADLE TO GRAVE PROGRAM/PROJECT MANAGEMENT**
- **ISO CERTIFIED ADVANCED QUALITY PLANNING SYSTEM**
- **50 YEARS PLUS PM EXPERIENCE**
- **PROJECT MANAGEMENT TOOLS & SOFTWARE**
- **PROJECT/PROGRAM INTEGRATION**
- **INTERNATIONAL PROJECT MANAGEMENT EXPERIENCE**

CONTRACT MANAGEMENT

- **LIFE OF CONTRACT- CONTRACT MANAGEMENT**
- **ISO CERTIFIED CONTRACT REVIEW & CLOSE OUT SYSTEM**
- **50 YEARS PLUS CONTRACTING EXPERIENCE**
- **CM TOOLS & SOFTWARE**
- **CONTRACT NEGOTIATION & PROJECT/PROGRAM INTEGRATION**
- **INTERNATIONAL CONTRACT MANAGEMENT EXPERIENCE**
- **CRITICAL DEFECT & WARRANTY CLAUSE SPECIALISTS**

CONFIGURATION MANAGEMENT

- **ISO CERTIFIED DOCUMENT CONTROL SYSTEM**
- **DRAWING, CHANGE CONTROL & TDP MANAGEMENT SYSTEM**
- **50 YEARS PLUS CONFIGURATION MGMT. EXPERIENCE**
- **CM TOOLS & SOFTWARE**
- **CONFIGURATION REVIEW WITH PROJECT/PROGRAM INTEGRATION**
- **INTERNATIONAL CONFIGURATION MANAGEMENT EXPERIENCE**

TESTING & EVALUATION

- **NON DESTRUCTIVE TESTING FACILITIES**
- **OVER 50 YEARS'S EXPERIENCE IN NDT - X-RAY AND ULTRASONIC EXPERIENCE**
- **LEVEL III CERTIFIED NDT SPECIALISTS**
- **DIGITAL X-RAY IN USE**
- **RADAR TEST RANGE FOR ALL 40MM PRODUCTS**
- **DATA COLLECTION AVAILABLE AT TEST RANGE**

LEAN & 6 SIGMA CONTINUOUS IMPROVEMENT

- Lean Manufacturing Program in 4th Year of Maturity
 - Lean System Implemented for All Products
 - Mistake Proofing Practices Applied to All Processes

- 6 Sigma Quality Program In 3rd Year of Maturity
 - Continuous Improvement BB/GB Projects Across All Products
 - 35 Projects Targeted Across AO for 2003-70% Complete
 - 8 Six Sigma Black Belts and 35 Six Sigma Green Belts Working Projects
 - DMAIC Process- DOEs & FMEAs To Develop Best Value Techniques

PROCESS INVESTMENT

- Millions of Dollars Invested in 40MM Process Improvements
- Emphasis On Improving Safety and Quality While Lowering Cost
- Projects implemented include:
 - High Reliability Automated Inspection Systems
 - Vision Systems
 - Lasers Inspection Systems
 - Closed Loop PLC Controls
 - Improved Product Marking Systems
 - Environmentally Controlled Manufacturing Areas

★ Results - improved safety, quality, cost & customer satisfaction

MLAAP 40MM CAPABILITY SUMMARY

➤ QUANTITIES PRODUCED BY AO AT MLAAP PAST 3 YEARS

- M430 HEDP HV - 3 million +
- M918 TP HV - 6 million +
- M385 TP HV - 1 million +
- M433 HEDP LV- 200,000



PROCESS CAPABILITY AND INSPECTION RELIABILITY

**YIELDING DELIVERED PRODUCT WITH LESS
THAN**

1 DEFECT PER 2 MILLION ROUNDS DELIVERED